Chapter 5

Foundations for Urban Operations

Utilities such as electricity and water are as much weapons of war as rifles, artillery pieces or fighter aircraft. . . . In the case of Manila, where there was a noncombatant, civilian population of one million in place, it was the attacker's aim to capture the utilities which the defender planned to destroy.

The Battle for Manila

Commanders conducting major urban operations (UO) use their ability to visualize how doctrine and military capabilities are applied within the context of the urban environment. An operational framework is the basic foundation for this visualization. In turn, this visualization forms the basis of operational design and decisionmaking. To accurately visualize, describe, and direct the conduct of UO, commanders and their staffs understand the basic fundamentals applicable to most UO. They also understand how the urban environment affects the battlefield operating systems (BOS) and the tactical urban battle.

URBAN OPERATIONAL FRAMEWORK

5-1. Army leaders who have an urban area in their area of operations (AO) or are assigned missions in an urban area follow an urban operational framework. They identify the portion of the urban area essential to mission success, shape the area, precisely mass the effects of combat power to rapidly dominate the area, and then transition control of the area to another agency. This framework divides into four essentials: *assess*, *shape*, *dominate*, and *transition*. These four components provide a means for conceptualizing the application of Army combat power and capabilities in the urban environment. The Army framework modifies the joint urban operations framework

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(understand, shape, engage, consolidate, and transition) to further clarify the JUO concepts within the context of Army capstone doctrine found in FM 3-0. The framework for joint urban operations (JUO) provides the joint force commander a framework for planning and conducting JUO. FM 3-0 provides Army commanders with the operations process that provides a framework for planning, preparation, execution, and continuous assessment. Army capstone doctrine, supported with the Army UO framework, is fully compatible with the concepts and purpose of the JUO framework.

5-2. The urban operational framework assists commanders in visualizing urban operations. This framework is simply an aid to the commander. Commanders combine the framework with—

- The principles of war.
- The tenets of Army operations.
- The components of operational design.
- Considerations for stability operations and support operations.
- Characteristics of combat service support (CSS).
- Staff estimates.
- Commander's critical information requirements (CCIR).
- Each commander's experience.

The framework contributes to the visualizing, describing, and directing aspects of leadership that make commanders the catalysts of the operational process (see Figure 5-1). In the same manner, the urban operational framework contributes to the overall operations process (see FM 3-0).

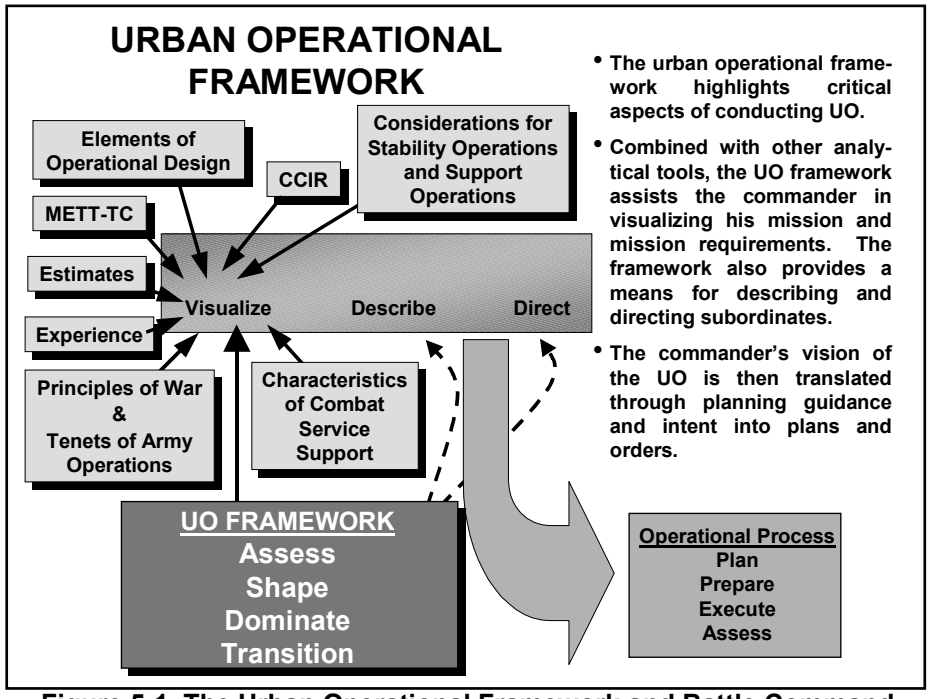

Figure 5-1. The Urban Operational Framework and Battle Command

ASSESS

5-3. Assessment is the continuous monitoring—throughout planning preparation, and execution—of the current situation and progress of an operation, and the evaluation of it against criteria of success to make decisions and adjustments (FM 3-0). Commanders use visualization as their assessment method, staff officers use staff estimates, and all use the intelligence preparation of the battlefield (IPB) process. Commanders and staffs begin the assessment process by observing and then collecting information about the situation. They observe and learn about the urban environment, and factors of METT-TC—mission, enemy, terrain and weather, troops and support available, time available, civil considerations. They use intelligence, surveillance, and reconnaissance means; information systems (INFOSYS); and reports from other headquarters, services, organizations, and agencies. Then they orient themselves to the situation and achieve situational understanding based on a common operational picture (COP) and continuously updated CCIR. Largely, the ability to rapidly and accurately assess the situation contributes to the commanders' abilities to seize, retain, and exploit the initiative during UO.

Disproportionately Critical

5-4. The Army operations process requires continuous assessment; it precedes and guides every activity. In UO, however, assessment is disproportionately critical for several reasons. First, each urban environment is unique. Other environments can be studied and their characteristics quantified in a general manner with accuracy. This is fundamentally not true of different urban areas. The characteristics and experience in one urban area often have limited value and application to an urban area elsewhere. This characteristic sets UO apart from operations in other environments.

Extremely Dynamic

5-5. The urban environment is also extremely dynamic. Either deliberate destruction or collateral damage can quickly alter physical aspects of the urban environment. The human aspect is even more dynamic and potentially volatile. A friendly civil population, for example, can become hostile almost instantaneously. These dynamics (combined with initial difficulty of understanding and describing this unique environment) make it difficult for commanders and staffs to initially develop and maintain a COP and establish situational understanding. Furthermore, public reaction to media coverage of the urban operation and political changes influence national objectives and overall strategy. Such changes can affect the basic nature of an operation, especially after it has commenced. Anticipating these potential effects and developing appropriate branches and sequels based on an accurate assessment often determines how quickly commanders can achieve the desired end state.

Risk Assessment

5-6. As in any environment, UO pose both tactical and accident risks. However, the level of uncertainty, ambiguity, and friction can often be higher than that of many other environments. Such challenges increase the

probability and severity of a potential loss due to the presence of the enemy, a hostile civilian group, or some other hazardous condition within the urban environment (see Necessity of Urban Operations in Chapter 4). Therefore, commanders—

- Identify and assess hazards that may be encountered in executing their missions.
- Develop and implement clear and practical control measures to eliminate unnecessary risk.
- Continuously supervise and assess to ensure measures are properly executed and remain appropriate as the situation changes.

Risk decisions are commanders' business. Staffs, subordinate leaders, and even individual soldiers also understand the risk management process and continuously look for hazards at their level or within their area of expertise. Any risks identified (with recommended risk reduction measures) are quickly elevated to the appropriate level within the chain of command (see FM 100-14).

Complex and Resource Intensive

5-7. The urban environment is the most complex of all the environments in which the Army conducts operations. It is comprised of a diverse civil population and complex, ill-defined physical components. A sophisticated net of functional, social, cultural, economic, and political institutions unites it. Thus, the analysis to understand the environment is also complex and time and resource intensive. The nuances of the urban environment can take years to uncover. Hence, constant analysis of the environment requires greater command attention and resources. Accurately assessing the environment is a prerequisite to shaping it, and both are critical to achieve domination.

SHAPE

5-8. Shaping operations, part of all Army operations, are essential to successful UO. They set the conditions for decisive operations at the tactical level in the urban area. Rapid action, minimum friendly casualties, and acceptable collateral damage distinguish this success when the AO is properly shaped. Failure to adequately shape the urban AO creates unacceptable risk. The commander of a major urban operation has several resources with which to begin shaping the AO. Important capabilities include—

- Fires.
- Information operations.
- Special operations capabilities.
- The maneuver of major subordinate units.

Isolation

5-9. Isolation of an urban environment is often the most critical component of shaping operations. Commanders whose AO includes operationally significant urban areas often conduct many shaping operations to isolate, or prevent isolation of, those areas from other parts of the AO. Likewise, commanders operating in the urban area focus on isolating decisive points and objectives in the urban area or from being isolated. Isolation is usually the

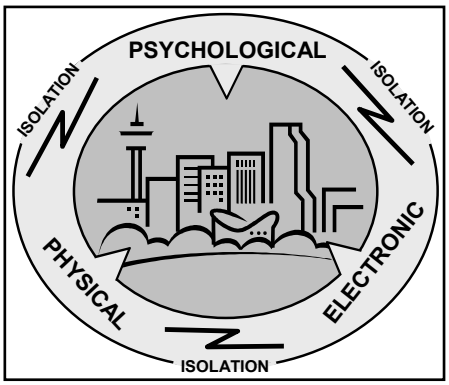

Figure 5-2. Urban Isolation

key shaping action that affects UO. It applies across the range of Army operations. Most successful UO have effectively isolated the urban area. Failure to do so often contributed to a difficult or failed UO. In fact, the relationship between successful isolation and successful UO is so great that the threat often opposes isolation actions more strongly than operations executed in the urban area. In some situations, the success of isolation efforts has been decisive. This occurs when the isolation or imminent isolation of the urban area compels a defending enemy to withdraw or to surrender before beginning or completing decisive operations. In UO that are opposed, Army forces attempt to isolate the threat three ways: physically, electronically, and psychologically (see Figure 5-2).

5-10. **Physical Isolation.** In offensive UO, physical isolation keeps the threat from receiving information, supplies, and reinforcement while preventing him from withdrawing or breaking out. Conversely, a defending Army force attempts to avoid its own physical isolation. Simultaneously, this force conducts operations to isolate the threat outside, as they enter, or at selected locations in the urban area. Physical isolation can occur at all levels. In many situations, particularly major theater war (MTW), the commander of a major operation may attempt to isolate the entire urban area and all enemy forces defending or attacking it. At the tactical level, forces isolate and attack individual decisive points. In stability operations, physical isolation may be more subtly focused on isolating less obvious decisive points, such as a hostile civilian group's individual leaders. In many operations, isolation may be temporary and synchronized to facilitate a decisive operation elsewhere. To effectively isolate an urban area, air, space, and sea forces are necessary in addition to the capabilities of ground forces.

5-11. **Electronic Isolation.** Electronic isolation is achieved through offensive information operations (IO). Electronic warfare (particularly two of its components: electronic warfare support and electronic attack) and computer network attack are critical to electronic isolation (see FM 100-6 and Information Operations in Chapter 4). At the operational level, offensive IO aims to quickly and effectively control the information flow into and out of an urban area. This isolation separates the threat's command and control (C2) system - in the urban area from its operational and strategic leadership outside the urban area. Offensive IO also focuses on preventing the threat from communicating with civilians through television, radio, telephone, and computer systems. At the tactical level, IO aim to isolate the threat's combat capability from its C2 and leadership within the urban area, thus preventing unity of effort within the urban area. Defensive IO are key to preventing isolation of friendly forces defending in an urban area.

5-12. **Psychological Isolation.** Psychological isolation is a function of public affairs, physical actions, electronic warfare, and other forms of IO,

especially military deception and psychological operations. Psychological isolation denies the threat political and military allies. It separates the enemy or hostile civilian group from the friendly population, nongovernmental organizations (NGOs) operating in the urban area, and from political leaders who may consider supporting Army forces. Psychological isolation destroys the morale of individual enemy soldiers or hostile civilians. It creates a feeling of isolation and hopelessness in the mind of the threat. It undermines the confidence of the threat in their leadership. On the other hand, IO, as well as the disciplined conduct of Army personnel, can help to forge legitimacy for Army operations. In stability operations, psychologically isolating the threat results in the friendly urban population and NGOs positively supporting Army operations.

Other Shaping Actions

5-13. Other shaping actions can include the proper sequencing and deployment of forces, reconnaissance operations, and force protection. These actions contribute equally to the success of any urban operation. Commanders understand how the urban environment affects their ability to accomplish these shaping actions. However, civil-military operations (CMO), another closely related activity of IO, are important to shaping the urban battlespace for decisive operations. The specific civil-military task can vary greatly and may include affecting a cooperative relationship with the civil political system, protecting portions of the civil population or infrastructure, or establishing refugee camps or safe areas for noncombatants. This is most true in stability operations and support operations. Successful CMO also can contribute to the psychological isolation of the threat. (See Civil-Military Operations in Chapters 4 and 9 for more detailed discussions.)

Training and Education

5-14. Finally, Army commanders know that critical shaping actions often occur prior to the urban operation in the form of professional education and training. Commanders can enhance training through joint, interagency, multinational, and combined arms exercises and effective rehearsals. Capabilities and competencies of units include—

- A general understanding of the urban environment to include effects on soldiers, weapon systems, and equipment. Significantly, commanders cultivate a firm understanding of urban time-distance relationships.
- Multicultural understanding.
- A solid grounding in urban combat to include appropriate tactics, techniques, and procedures (see FM 3-06.11 and TC 90-1).

DOMINATE

5-15. Army forces dominate by establishing pervasive and lasting control and influence over the urban environment until responsibilities are transferred to other legitimate military or civilian control. Decisive operations, at all echelons across the full spectrum of operations, are critical to a commander's ability to dominate. Decisive operations take advantage of the Army force's superior training, leadership, and, within the constraints of the environment, technology. These operations apply overwhelming combat power or

capabilities to achieve maximum effects. Army forces dominate a situation when they have fulfilled all mission requirements and established preeminent military control over the threat, geographical area, or population. Achieving domination in a specific urban operation depends, of course, on the situation and the assigned mission.

Offense: Attack Decisive Points

5-16. In urban offensive operations, forces achieve dominance by successfully striking at the enemy's center of gravity using multiple offensive actions from unexpected directions and throughout all dimensions. Army forces aim to dominate identifiable decisive points. Successful efforts against decisive points lead to effects on the center of gravity. The center of gravity will differ in each offensive situation. It may be an individual enemy leader, the enemy's combat power, the enemy's communications capability, or a physical structure of cultural, political, or economic significance.

Defense: Deny Vital Functions and Critical Infrastructure

5-17. In urban defensive operations, domination translates into denying the enemy control of the vital functions and critical infrastructure of the urban area. Forces achieve this by leveraging the defensive advantages of the urban terrain, defending essential areas in depth, using economy of force in nonessential areas, controlling the enemy direction of attack with natural and man-made obstacles, and retaining the initiative through counterattacks.

Stability and Support: Apply Innovation and Imagination

5-18. The ability to dominate in urban stability operations hinges on the type of stability operation commanders execute. In a noncombatant evacuation operation, forces limit domination to finite geographic areas and times. In contrast, a peace operation may require domination of a large urban area for an extended time. In this operation, dominate is defined as using the array of Army capabilities to create specific conditions among the belligerents. Thus, the techniques used for domination in stability operations vary according to the situation and as situations mature during long-term operations.

5-19. In urban support operations, dominating the situation may require innovative and subtle application of Army capabilities. Since Army forces usually support other agencies that lead the operation, achieving domination results from carefully and discretely applying Army capabilities to the tasks assigned by the lead agency. In a humanitarian relief situation, Army forces may be tasked to transport supplies in the urban area. Domination of this activity then becomes the goal of Army forces and may be achieved by providing, managing, and protecting transportation assets.

TRANSITION

5-20. When planning UO, commanders ensure that they plan and prepare for transitions. Transitions are movements from one phase of an operation to another. They involve significant changes in the type of operation, concept of the operation, mission, situation, task organization, forces, resource allocation and support arrangements, or C2. Transitions occur in all operations, but in UO they occur with greater frequency and intensity, are more complex,

and often involve agencies other than US military organizations. For example, a successful attack may transition to a defend mission that includes not only defense tasks but also stability tasks. Unless planned and executed effectively, transitions can reduce the tempo of the urban operation, slow its momentum, and cede the initiative to the threat.

Mental and Physical Preparation

5-21. Transitions occur as conditions warrant. They can be carefully planned and controlled, or they can be quick and dramatic, such as the swift transformation of a stability operation into offense or defense. Units prepare mentally and physically to address rapid transitions. Accordingly, plans include branches and sequels that address anticipated or possible transition points. When the dominant type of operation changes from an offense to stability, the types of units originally conducting the UO may no longer be appropriate. A large mobile reserve may permit increased flexibility to react to unplanned transition requirements. Operations in one part of an urban area may transition before operations in a different part of the same urban area. This will require commanders to execute various types of operations and associated tasks simultaneously.

Transition to Legitimate Civilian Authorities or Agencies

5-22. In UO, a distinct aspect of transition is the requirement to quickly and efficiently transition the major portions of Army responsibilities to civil agencies. Some tasks to which units will transition are not traditional combat tasks but rather stability tasks more closely associated with CMO. In stability operations and support operations this is often a near-term critical mission objective. In these operations, commanders aim to alleviate the circumstances requiring Army forces and ensure that other civilian agencies assume the functions provided by Army forces. In combat operations, civilian agencies quickly resume specific support activities—such as providing sanitary services, food services, law enforcement, and health services—because of their high demand on Army resources.

Clearly Visualize and Describe the End State

5-23. Army UO conclude when Army forces depart and have no further mission requirements in the urban area. At the outset, commanders visualize and describe the intended end state of a unit's execution of UO. Commanders then clarify and update this visualization as the political or strategic situation is refined or changes. This enables subordinate units to identify likely transitions and ensures that current operational planning takes into account second- and third-order effects. As long as an active Army AO contains an urban area, some type of urban operation will exist. After urban combat successfully ends, combat forces may move on. Support forces conducting sustaining operations may then occupy the area and continue to conduct a different form of UO.

Applying the Urban Operational Framework
Panama – December 1989

The US conducted OPERATION JUST CAUSE in December 1989 to remove the illegal ruler of Panama, Manuel Noriega, and to restore that country to a democracy. It also conducted the operation to ensure the safety of a substantial number of US personnel as well as the security of US interests in Panama. The major focus of JUST CAUSE was in Panama City, the country's capital. Most operations occurred in this large urban area, one of the numerous smaller urban areas, or the urban-like military bases. These bases proliferated the AO and were directly linked to operations in the capital city. This successful operation illustrates how commanders can apply the urban operational framework to visualize, describe, and direct the critical aspects of urban operations.

Assess

The synchronization achieved during the operation may have obscured the challenges faced in the initial assessment process in Panama. However, it was not as simple as it may have seemed. Using the framework of the urban environment, US forces required details of the physical characteristics of the environment, the infrastructure, and the human dimension including the capabilities of the Panamanian military.

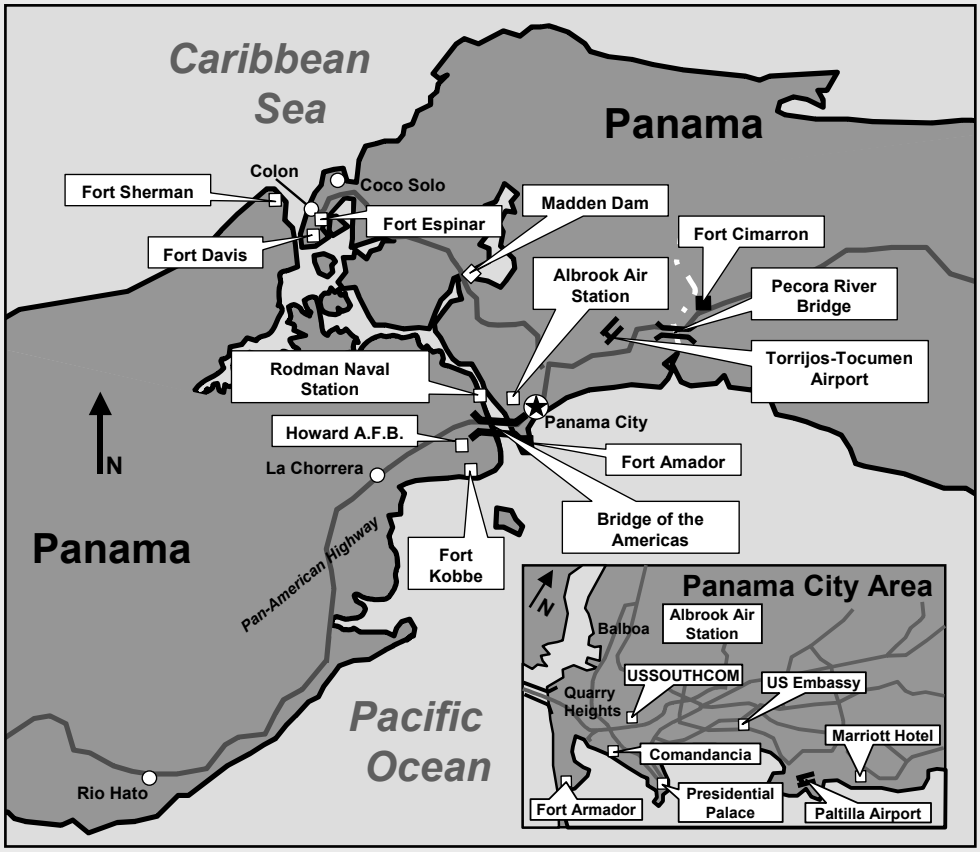

Figure 5-3. Panama

Because Army forces had a long history in Panama, commanders clearly understood the physical challenges and layout of critical urban areas (see Figure 5-3 on page 5-9), particularly Panama City. They also understood how the infrastructure in each urban area functioned and which parts would be key to success. Examples of key portions of the infrastructure included the Madden Dam, which controlled the water flow through the Panama Canal, and the Cerro Azul television tower, which was the main Panamanian broadcast tower.

Collecting information and developing intelligence on the human elements of the urban environment was critical to operational success and a challenge. Because the Panamanian Defense Force (PDF) had traditionally been an ally of the US, Army forces did not have a systemic database that adequately depicted their order of battle and their true capabilities. Additionally, much of the situation in Panama was colored in political terms making it more difficult for traditional military sources to evaluate the status of PDF forces. For example, Army planners needed to know if PDF military units (when faced with a formidable US force) would fight at all for Noriega and if they did fight, how hard and long would they fight. The answers depended largely on their political loyalty to Noriega and on the individual loyalty of the unit officers to the Panamanian president. Thus, Army commanders needed to understand the military characteristics of PDF units and their political affiliations and tendencies.

Because transition from combat to noncombat tasks would be critical to achieving all objectives, particularly the restoration of democracy, Army forces also needed an accurate assessment of the political opposition to Noriega—including that opposition's capabilities and vulnerabilities. Again, Army forces were required to make assessments outside those needed solely for combat operations. Ultimately, assessing the political opposition's vulnerabilities led to assigning Army units to protect them throughout the operation so that they could serve as a foundation for a new democratic government.

Finally, the commander's assessment included an evaluation (often subjective) of the attitudes and disposition of the Panamanian people. Human intelligence (HUMINT) was the primary source of information on the population. Army forces had good access to the population because of their close proximity and historical ties to Panama. Many soldiers were married to Panamanians, and the Army had total access to local media and to prominent individuals.

National imagery and special operations forces (SOF) also contributed to the ability of Army forces to assess the urban environments of JUST CAUSE. All units executing operations had detailed satellite photos of objective areas. Additionally, key objectives were placed under SOF surveillance well in advance. This surveillance revealed unit readiness, vulnerabilities, detailed disposition, and other patterns critical to mission success. The combination of the two capabilities allowed units to plan and achieve the synchronization necessary for such a complex urban operation.

Shape

During OPERATION JUST CAUSE, commanders conducted numerous shaping operations to establish the conditions for the decisive operations. Many operations were designed to control information, such as an assault on the Azul television tower identified during the assessment of the infrastructure. Planners designed many shaping operations to isolate various garrisons and PDF units.

An example of tactical isolation was the plan for the Pacora River Bridge to prevent reinforcements from reaching the garrison at Torrijos-Tocumen Airport.

Operational isolation was achieved through the Ranger Regiment's and 82nd Airborne Division's assault on targets at Rio Hato in the west and Fort Cimarron in the east. These actions in conjunction with the securing of Maddam Dam had the primary objective of isolating Panama City. They were also the largest of the major actions occurring during OPERATION JUST CAUSE. The airborne assault was also the largest airborne operation conducted by US forces since World War II. This large-scale shaping operation demonstrates that shaping operations are critical to mission success and can be more resource intensive than the actual operations that achieve domination.

Dominate

US Army forces achieved domination in OPERATION JUST CAUSE by establishing unchallenged military control over Panama City and eliminating Noriega's capability to challenge that control. Toward this end, the operation attacked two decisive points. The first was the assault on the PDF headquarters located in Panama City: the *Comandancia.* The second was the operation undertaken to locate and seize Noriega himself.

Three battalions of task force (TF) Bayonet (5-87th Infantry, 1-508 Infantry [Airborne], and 4-6th Infantry [Mechanized]) executed the attack on the *Comandancia* and Fort Amador. They were also tasked to protect the American Embassy in downtown Panama City. To execute these missions, they moved from various staging areas located throughout the city to their assigned objectives using air assault, mounted, and dismounted approaches. The ground movement through the city proved to be the most difficult and hazardous part of the mission due to the vulnerability of the troops in their armored personnel carriers and trucks. The dismounted movement was slower than the mounted movement but allowed the soldiers greater cover and concealment.

The strongest opposition to TF Bayonet occurred at the *Comandancia*. Elements of three PDF companies and two public order companies held out for three hours. The troops moving to *Comandancia* were subject to a large volume of sniper fire, and in the assault, unidentified indirect fire caused significant casualties among the mechanized forces. TF Bayonet forces, supported by airborne armored reconnaissance vehicles and Hellfire missiles from Apache helicopters, captured the *Comandancia*. Commanders noted in particular the precision of the supporting fires from attack helicopters. The assault by fire from supporting AC-130 gunships destroyed most of the reinforced *Comandancia* building.

Simultaneously, SOF attacked several targets where Noriega might be located. These initial attacks were unsuccessful. However, many subsequent actions neutralized Noriega's influence and eventually resulted in his apprehension on 3 January 1990. These actions included the well-organized and relentless manhunt conducted by SOF units, the isolation of Panama City itself, population control efforts, sophisticated IO, and cooperation with other US agencies.

Transition

OPERATION JUST CAUSE demonstrated the vital need for a thought-out plan that adequately addresses the transition from combat to noncombat *before* commanders initiate operations. Normally in complex UO, commanders cannot leave

the details of transition until after the operation has begun without unacceptable risk to overall mission accomplishment. The follow-on stability operation, OPERATION BLIND LOGIC (later renamed OPERATION PROMOTE LIBERTY) began 24 hours after the initial assault and thus both operations were occurring simultaneously. This simultaneity of different types of operations is typical in major operations conducted in a large urban area. The stability operations involved more time than the combat operation and continued well after the close of OPERATION JUST CAUSE and after most of the major combat units had redeployed. It involved significant resources without the same level of risk to US forces as the combat operations.

Civil affairs (CA) were a dominant part of the transition from combat to stability operations. The 96th Civil Affairs battalion was central to this operation. CA forces established a civil police force, emergency food distribution, property protection, production and distribution of newspapers, cleanup of the city, and building support for a new civil government. Most tasks were coordinated through Army CA forces and executed by other Army forces under the supervision of CA.

IO were also a major aspect of affecting a stable transition and successful post-combat operations. These operations built support for the US operation among the population. They emphasized that the US conflict was with Noriega and not the Panamanian people and that the US forces would depart as soon as a new Panamanian government could take over.

Other US agencies played critical roles in stability operations in Panama. The US Drug Enforcement Agency and Justice Department were important to the negotiations that led to Noriega's capture. The US State Department helped to negotiate for Noriega and develop military policies and plans during the stability operation. The American Embassy advised commanders regarding the large diplomatic community that existed in Panama City.

FUNDAMENTALS OF URBAN OPERATIONS

5-24. UO often differ from one operation to the next. However, some fundamentals apply to UO regardless of the mission, geographical location, or level of command. Some of these fundamentals are not exclusive to urban environments. They are particularly relevant to an environment dominated by man-made structures and a dense noncombatant population (see Figure 5-4). Appendix A provides an historical example of how these fundamentals apply to an actual conflict situation.

PERFORM FOCUSED INFORMATION OPERATIONS

5-25. Information operations aimed at influencing non-Army sources of information are critical in UO. Because of the density of noncombatants and information sources, the media, the public, allies, coalition partners, neutral nations, and strategic leadership will likely scrutinize how Army forces participate in UO. The proliferation of cell phones, Internet capability, and media outlets ensure close observation of the activities of Army forces. With information sources rapidly expanding, public information of Army operations will be available faster than the internal military INFOSYS can process it. Army forces should aggressively integrate IO into every facet and at all

levels of the operation to prevent negative impacts. Under media scrutiny, the actions of one soldier may have significant strategic implications. IO aim to make the information accurate; placed in the proper context of the Army's mission; and available to all interested parties: the public, the media, and other agencies.

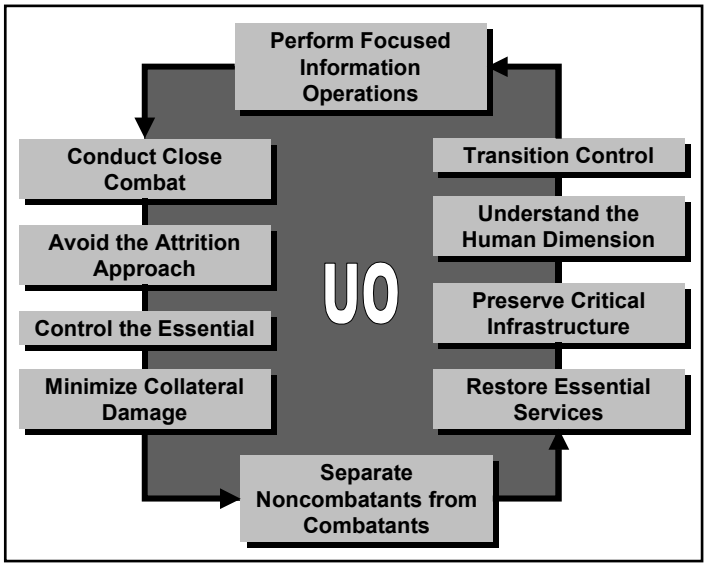

Figure 5-4. Fundamentals of Urban Operations

CONDUCT CLOSE COMBAT

5-26. Close combat is required in all offensive and defensive UO. This core capability is also present and visible in urban stability operations and may be required in urban support operations. Close combat in any urban operation is resource intensive, requires properly trained and equipped forces, and has the potential for high casualties. However, the ability to close with and destroy enemy forces as a combined arms team remains essential. This ability allows Army forces to morally dominate a threat, destroy his means to resist, and terminate urban conflicts on the Army commander's terms. Therefore, *nothing in this manual should lead commanders to compromise this decisive capability*.

AVOID THE ATTRITION APPROACH

5-27. Previous Army doctrine was inclined towards a systematic linear approach to urban combat. This approach emphasized standoff weapons and firepower. Army force structure does not support this approach towards UO. It can result in significant collateral damage, a lengthy operation, and an inconsistency with the political situation and strategic objectives. Enemy forces that defend urban areas want Army forces to adopt this approach because of the likely costs in resources. Commanders should only consider this approach to urban combat as an exception and justified by unique circumstances.

CONTROL THE ESSENTIAL

5-28. Many modern urban areas are too large to be completely occupied or even effectively controlled without an enormous force. Therefore, Army forces focus their efforts on controlling only the essentials to mission accomplishment. At a minimum, this requires control of key terrain. Key terrain is terrain whose possession or control provides a marked advantage to one side or another. In the urban environment, commanders determine key terrain

based on its functional, political, economic, or social significance. A power station or a church may be key terrain.

5-29. All principles of war can apply to UO. The principle of mass and the principle of economy of force (in addition to the principle of unity of command discussed later in this chapter) are particularly important in guiding UO and providing mission focus. Army forces mass combat power only to control those requirements essential for mission success. This permits conservation of combat power. It also implies economy of force and associated risk in those areas where Army forces *choose* not to exercise control.

MINIMIZE COLLATERAL DAMAGE

5-30. Forces should use precision fires, IO, and nonlethal tactical systems consistent with mission accomplishment while decreasing the potential for collateral damage. Commanders develop unique rules of engagement (ROE) for each urban operation and provide necessary firepower constraints. IO and nonlethal systems may compensate for some restrictions, especially in stability operations and support operations. Commanders continually assess the short- and long-term effects of firepower on the population, infrastructure, subsequent missions, and national and strategic objectives.

SEPARATE NONCOMBATANTS FROM COMBATANTS

5-31. Promptly separating noncombatants from combatants (psychologically and physically) may make the operation more efficient and diminish some of the threat's asymmetrical advantages. This separation also may reduce restrictions on the use of firepower, enhance force protection, and strip the threat from its popular support base. This important task becomes more difficult when the threat is an unconventional force that can mix with civilians.

5-32. In recent operations, threats have sought to integrate their military capabilities as closely as possible into the civilian population and infrastructure. In these conditions, commanders increase their efforts to discriminate between the two. Soldiers managing violence in this setting require the highest level of individual and organizational discipline and judgment. The training, effort, and command emphasis in this area is as important as fully successful results. Such efforts strongly impact national and international perceptions of the operation.

RESTORE ESSENTIAL SERVICES

5-33. Army forces plan to restore essential services that may fail to function before or during an operation. Essential services include power, food, water, sewage, medical care, and law enforcement. When planning for and conducting Army UO, units can use nonlethal and less destructive munitions and capabilities to keep potentially vital infrastructure intact. Initially, Army forces may be the only force able to restore or provide essential services. Failure to do so can result in serious health problems for the civilians, which can affect the health of Army forces and negatively impact overall mission success. Army forces transfer responsibility for providing essential services to other agencies, NGOs, or the local government as quickly as possible.

PRESERVE CRITICAL INFRASTRUCTURE

5-34. Commanders analyze the urban area to identify critical infrastructure. They attempt to preserve the critical elements for postcombat sustainment operations, stability operations, support operations, or the health and well-being of the indigenous population. Urban areas remain in the AO after combat operations have ceased. Postcombat UO are unavoidable. Different from simply avoiding collateral damage, Army forces may have to initiate actions to prevent an enemy or a hostile civilian group from removing or destroying critical infrastructure. Such infrastructure may include cultural resources such as religious and historical places. In some cases, preserving the infrastructure may be the assigned objective of the urban operation.

UNDERSTAND THE HUMAN DIMENSION

5-35. Commanders carefully consider and manage the perceptions, allegiance, and morale of the civilians. Their assessment of the environment needs to accurately identify the attitudes of the people toward Army forces. Operational guidance to subordinates—including ROE, protection, logistics operations, and fraternization—is based on this assessment. Commanders expect and consider the demographic variance in the attitudes of an urban population. They cannot inadvertently apply Western cultural norms to a non-Western urban population. Commanders can only make assessments based on understanding and appreciating the local culture.

5-36. Sound policies, proper discipline, and adequate consideration for local culture will positively affect the attitudes of the population toward Army forces. Additionally, well-conceived and executed IO will enhance the position of Army forces relative to the urban population. Even during high-intensity urban combat, heightened awareness of and sensitivity toward the civilians can lead to a better postcombat situation than if civil considerations were unobserved or diminished in importance. An improved postcombat situation enhances transition. As the environment of conflict becomes more complex, the human dimension (and associated moral aspects) takes on greater importance and may have the greatest potential for affecting the successful outcome of UO. Therefore, the human aspect creates a discrete overall planning area.

TRANSITION CONTROL

5-37. Because UO are resource intensive, commanders plan to end them quickly, yet consistently with successful mission accomplishment. The end state of all UO transfers control of the urban area to another agency or returns it to legitimate civilian control. Quick transition releases Army resources for use elsewhere and improves the civilian morale and disposition toward Army forces. This requires the successful completion of the Army force mission and a thorough transition plan. The transition plan may include returning control of the urban area to another agency a portion at a time as conditions permit.

GENERAL EFFECTS ON OPERATIONS

5-38. Commanders understand the general effects that the environment has on the BOS. They also understand the effects that the environment has on lower-level tactics to properly plan, prepare, and execute major operations that may include UO. Otherwise, commanders may ask their subordinates to achieve effects, accomplish objectives, or adhere to a timetable that is unsupportable due to the constraints imposed by the urban environment. However, commanders do more than simply understand the impossible, rather they determine what it will take to make it possible.

BATTLEFIELD OPERATING SYSTEMS

5-39. Understanding the effects of the BOS permits the urban commander to better visualize the battlespace. See Figure 5-5. With this appreciation, he can conduct a more thorough assessment and thereby determine the most efficient means of employing Army forces. The staff can be intimately familiar with effects in their area of expertise and use that knowledge to understand the problem and develop creative and innovative solutions to achieve their commander's intent.

- Intelligence
- Maneuver
- Fire Support
- Air Defense
- Mobility, Countermobility, and Survivability
- Combat Service Support
- Command and Control

Figure 5-5. Battlefield Operating Systems

Intelligence

5-40. The intelligence system plans, directs, collects, processes, produces, and disseminates intelligence on the threat and the environment. The urban environment affects this critical system in many ways. Impacts of the environment on the intelligence system include degraded reconnaissance capability, more difficult IPB process, and increased importance of credible HUMINT. The Army forces' response to these effects can result in timely, accurate, and actionable intelligence that permits the effective application of other BOS to the mission within the urban environment.

5-41. **Degraded Reconnaissance and Surveillance Capability.** The physical environment creates a major challenge to the intelligence system. The man-made construction in the urban areas provides nearly complete cover and concealment for threats. Current sensor capabilities cannot penetrate the subsurface facilities and much of the space within intrasurface

areas. The mass of buildings can also defuse electronic signatures. Tall buildings shield movement within urban canyons from aerial observation except from directly overhead. Urban threats may be less technology dependent and may thwart some signals intelligence efforts simply by turning off their radios and using messengers. Threat forces will likely use elements of the civilian telecommunications infrastructure for C2. These systems may include traditional landline phones, cellular telephones, and computer-to-computer or Internet data communications. Most urban telecommunications systems use buried fiber or cables or employ modern digital signaling technology. Such systems are difficult to intercept and exploit at the tactical level. These characteristics make it difficult for the intelligence system to use electronic means to determine threat dispositions and, in offensive and defensive UO, identify decisive points and centers of gravity.

5-42. **Challenging IPB Process.** The complexity of the environment also challenges the intelligence system. The intelligence system applies the IPB process to the urban environment in accordance with Army doctrine (see Appendix B). With more data points for the IPB process to identify, evaluate, and monitor, this application becomes more demanding. The human and societal aspects of the environment and the physical complexity primarily cause this difference. Relationships between aspects of the environment, built on an immense infrastructure of formal and informal systems connecting the population to the urban area, are usually less familiar to analysts. Thus, the urban environment often requires more intelligence resources to penetrate, identify, monitor, and assess than other environments.

5-43. Compounding the challenges is the relative incongruity of all urban environments. No two urban areas are alike physically, in population, or in infrastructure. Thus, experience in one urban area with a particular population and pattern of infrastructure does not readily transfer to another urban area. Any experience in UO is valuable and normally serves as a starting point for analysis, but the intelligence system cannot assume (and treat as fact) that patterns of behavior and the relationships in one urban area mirror another urban area. The opposite is as likely to hold true. The intelligence system will have to study each urban area individually to determine how it works and understand its complex relationships.

5-44. Each characteristic of the urban environment—terrain, society, and infrastructure—is dynamic and can change radically in response to UO or external influences. Civilian populations pose a special challenge to commanders conducting UO. Civilians react to, interact with, and influence to varying degrees Army forces. Commanders know and account for the potential influence these populations may have on their operations. Intelligence analysts revisit or continuously monitor the critical points looking for changes.

5-45. The actions of Army forces will affect, positively or negatively, their relationship with the urban population and, hence, mission success. NGOs may deliberately or inadvertently influence civilians. The intelligence system can monitor and predict the reactions of the civil population. Predictive analysis of a large population requires specific training and extensive cultural and regional expertise.

5-46. **Increased Importance of Human Intelligence.** The intelligence system adjusts to the degradation of its technical intelligence gathering systems by increasing emphasis on HUMINT in UO. HUMINT operations may be the primary and most productive intelligence source in UO. In urban offensive and defensive operations, HUMINT gathers information from refugees, former citizens (especially previous civil administrators), civilian contractors, and military personnel who have operated in the area. Credible intelligence of this type can help meet requirements, provide more detail, and alleviate some of the need to physically penetrate the urban area with reconnaissance forces.

5-47. In urban stability operations and support operations, HUMINT identifies threats and monitors the intentions and attitudes of the population. A chief source of HUMINT is reconnaissance forces. However, the physical nature of the urban area also poses an obstacle to these intelligence assets. Chapter 4 discusses these challenges. Reliable and trustworthy HUMINT is particularly important in foreign internal defense, combatting terrorism, and support to counterdrug operations. Leaders organize intelligence resources appropriately, and learn and apply valuable techniques, such as pattern and link analysis (see FM 34-7).

5-48. NGOs can be extremely beneficial sources of credible information about the urban environment. During the 1999 fighting in Kosovo, for example, the Red Cross provided the most accurate figures regarding the number of Kosovar refugees, helping US and other coalition forces to estimate the appropriate level of support required to handle their needs. NGOs may also have—

- A developed network of influential contacts including local leaders and business people.
- Historical archives.
- Extensive understanding of the urban infrastructure.
- Key knowledge of political and economic influences.
- Up-to-date web sites and maps.

Maneuver

5-49. Army maneuver forces—infantry, armor, cavalry, and attack aviation—move to achieve a position of advantage. Entire urban areas or specific threat forces located within may be isolated from affecting other operations and then bypassed. However, when the situation requires entering the urban area to accomplish the mission, the environment will significantly affect the Army's ability to maneuver (See Figure 5-6). These negative effects include

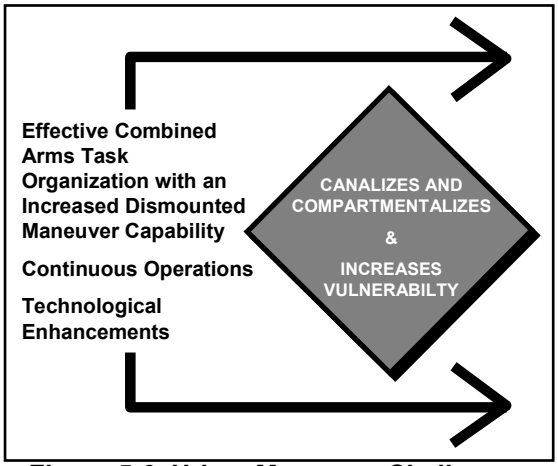

Figure 5-6. Urban Maneuver Challenges and Means to Overcome Them

canalization, compartmentalization, and increased vulnerability. However, tactics and techniques equip Army forces to overcome these challenges and maneuver successfully. One tactic, effective combined arms task organization, includes an increased dismounted maneuver capability, continuous operations, and technological enhancements.

5-50. **Canalization and Compartmentalization.** The urban terrain will often canalize and compartment forces maneuvering through it. Buildings pose obstacles to both mounted and dismounted movement, forcing units to be canalized along streets. The buildings also block movement between streets, thus compartmenting units. Changing directions, repositioning committed forces, reinforcing forces in contact, bypassing threats, and maneuvering to the threat flank become extremely difficult. Units often breach obstacles to help solve this problem. Using helicopters to quickly move forces, both forward into contact and to rear areas as part of repositioning, also permits Army forces to overcome some terrain constraints.

5-51. The canalized and compartmented effects can slow maneuver considerably. However, slowed maneuver also results from the physically demanding soldier tasks required in an urban environment. Soldiers operate dismounted across rubble and hard surfaces. Operating in three dimensions, they constantly move up the intrasurface areas of building interiors and down into basements, cellars, and other subsurface areas. They breach many obstacles and use upper-body strength, ropes, and ladders to scale heights. The inability to see into the next room, floor, or building magnifies stress. The resulting fatigue slows the overall rate of Army force maneuver.

5-52. **Increased Vulnerability.** The urban environment increases the vulnerability of Army forces executing maneuver in offensive, defensive, stability, and support operations. Both the physical terrain and the urban population provide threat cover and concealment. Air maneuver is vulnerable for many of the same reasons. In offensive or defensive operations, enemy forces can remain undetected in buildings and in position to ambush Army forces. Forces clear buildings along maneuver routes prior to mounted movement along those axes. Failure to clear routes (and effectively mark cleared portions) exposes mounted movement to ambush at close range. Movement back across streets and obstacles may be difficult particularly if the element of surprise was essential in the initial crossing or breach. The same buildings also provide cover and concealment to enemy air defense capabilities, particularly man-portable air defense systems. In all operations, but especially stability operations and support operations, civilians can conceal threat elements. The threat can then initiate offensive operations against Army forces from close range and where ROE will hamper applying combat power. Thus, maneuver through a dense population can be a high-risk operation.

5-53. **Combined Arms Task Organization.** Effective combined arms task organization ensures that forces are task organized with infantry—the essential building block for all organizations conducting UO. Infantry protects mounted elements as the combined arms unit maneuvers through the urban area. The infantry destroys the enemy in buildings and bunkers where they cannot be defeated by mounted forces. Combined arms also ensure that engineers support dismounted maneuver by assisting in covered and concealed maneuver through buildings and off exposed streets. Field artillery aids in

dismounted and mounted (to include air) maneuver by suppressing known and suspected enemy positions with precision fires. Armored elements protect soldiers from small arms fire and destroy or suppress enemy positions with direct fire. Artillery may also be used in this direct fire role. Armored forces and attack helicopters also can facilitate maneuver through shock action that can have a psychological effect, particularly against less well-trained threats and, in discrete instances, hostile crowds.

5-54. A major difference of UO combined arms is in proportion and organization. UO require an increased proportion of dismounted infantry and engineer capabilities. Armor is not required in the same high numbers. The level at which combined arms operations occur is also lower. Commonly, company level will require true combined arms capability and may include engineers, military intelligence, reconnaissance, and artillery. Combined arms teams can then form at platoon and squad levels. Because of this, larger units such as divisions will need more CA, military intelligence, and engineers than those included in the typical division structure, or as habitually attached for combat in more open terrain.

5-55. **Continuous Operations and Technology Enhancements.** Two other means to improve Army forces' ability to maneuver in urban terrain is through continuous operations and the leveraging of technology, such as the Army's night operations capability. Historically, urban battles have been fought primarily during daylight because of technological limitations and fatigue. By utilizing night vision technologies, accurate situational understanding, COP, training, and rotated units, Army forces can defeat threats who use the same soldiers in day and night operations and who are less well-equipped and adept at night operations. Night operations are also a means of mitigating the air defense threat against air maneuver. Continuous operations through night maneuver with fresh forces are challenging, but it can overcome many advantages that a stationary force has against maneuver in the urban environment. Commanders also consider that streetlights, fires, and background illumination (as well as dark building interiors without ambient light) may limit the effectiveness of night vision devices and make thermal imagery identification difficult.

Fire Support

5-56. The fire support system includes the collective and coordinated use of several means to attack targets in the urban area (see Appendix D for joint capabilities). These means include target acquisition data, indirect fire weapons, rotary- and fixed-wing aircraft, offensive IO, and other lethal and nonlethal means. The urban environment affects these components of the fire support system and their employment.

5-57. **Target Acquisition.** Target acquisition in an urban environment faces several challenges. First, forces have difficulty penetrating the urban environment's increased cover and concealment using sensors and reconnaissance. Acquiring targeting information and tracking targets throughout the depth of the urban area may prove challenging. Moving personnel or vehicular targets are normally easiest to acquire. However, the cover and concealment provided by urban terrain gives moving targets short exposure times requiring firing systems to act rapidly on targeting data. Targeting of opposing indirect fire units by acquisition radar works more effectively in urban terrain because of the necessary high angles of indirect fire. The urban environment presents similar difficulties for battle damage assessment.

5-58. Targeting challenges are met by innovatively integrating reconnaissance capabilities. These capabilities include SOF, long-range reconnaissance units, cavalry, unmanned aerial vehicles, and aerial observers as well as the standard reconnaissance assets of a division. More artillery systems may need to be used to ensure the responsiveness (rather than the weight) of fires. Positioning numerous artillery systems reduces the dead space (as discussed below) and permits units to establish more direct sensor-to-shooter links.

5-59. **Urban Effects on Fire Support Systems.** Both the physical and human components of the urban area affect how units use fire support weapon systems (see Figure 5-7). The physical aspects of the urban environment, such as the heights and concentration of buildings, cause significant *masking and dead space*. Buildings that stand three or more stories tall hinder close indirect fire support. Tall buildings can potentially mask several blocks of area along the gun-target line of artillery. For low-angle artillery fire, dead space is about five times the height of the building behind which the target sits. The *potential for collateral damage* to adjacent buildings may also prevent engagement with artillery. Such damage might cause noncombatant and friendly troop casualties and unintentional rubbling. Commanders can offset these effects by carefully placing artillery positions, repositioning artillery as targets change, and using mortars. Mortars have a steep angle of fall and short minimum ranges as a high-angle alternative to field artillery fire. In comparison to artillery, dead space for mortar fire is only about one-half the height of the building. Collateral damage concerns may also cause commanders to restrict attacks to certain times of day, give warning prior to an attack so that noncombatants can evacuate the area, or even abort an attack unless precision effects can be achieved.

- Masking and Dead Space
- Collateral Damage Limitations
- Acquisition and Arming Ranges
- Type and Number of Indirect Fire Systems
- Positioning
- Mix of Munitions

Figure 5-7. Urban Effects on Fire Support Systems

5-60. Vertical structures interrupt line of sight (LOS) and create corridors of visibility along street axes. The result is thereby shortened *acquisition and arming ranges* for supporting fires from attack helicopters and subsequently affected engagement techniques and delivery options. Pilots maintain LOS long enough to acquire targets, achieve weapons delivery solutions, and fly to those parameters. Tube-launched, optically tracked, wire-guided heavy antitank missile systems require 65 meters to arm. The Hellfire missile requires

at least 500 meters to reliably arm and stabilize on the intended target. Thus, attack helicopters firing from longer ranges actually improve the probability of a hit. Heavy smoke and dust rising from urban fires and explosions may hinder target identification, laser designation, and guidance for rotary- and fixed-winged aircraft. The close proximity of friendly units and noncombatants requires units to agree on, thoroughly disseminate, and rehearse clear techniques and procedures for marking target and friendly locations.

5-61. The urban environment also affects the *type and number of indirect fire weapon systems* employed. Commanders may prefer high-angle fire because of its ability to fire in close proximity to friendly occupied buildings. Tactically, commanders may consider reinforcing units in UO with mortar platoons from reserve units. This will increase the number of systems available to support maneuver units. Multiple Launch Rocket Systems (MLRSs) may be of limited use in urban areas due to their exceptional destructive capabilities and the potential for collateral damage. However, commanders may use MLRSs to isolate the urban area from outside influence. Commanders may also employ field artillery systems as independent sections, particularly self-propelled systems, in the direct-fire role; decreasing volume and increasing precision of artillery fire helps minimize collateral damage. While discretely applying the effects of high-explosive and concrete-piercing munitions, these self-propelled systems take advantage of the mobility and limited protection of their armored vehicles.

5-62. The urban area may affect the *positioning* of artillery. Sufficient space may not exist to place battery or platoon positions with the proper unmasked gun line. This may mandate moving and positioning artillery in sections while still massing fires on specific targets. Commanders protect artillery systems, particularly when organized into small sections. Threats to artillery include raids and snipers. Therefore, firing units will have to place increased emphasis on securing their positions.

5-63. The *mix of munitions* used by indirect fire systems will change somewhat in urban areas. Units will likely request more precision-guided munitions (PGM) for artillery systems to target small enemy positions, such as snipers or machine guns, while limiting collateral damage. Only conventional tube artillery, not mortars, has this capability. However, large expanses of polished, flat reflective surfaces common in urban areas may degrade laser designation for these munitions (as well as attack helicopter PGM). The vertical nature amplifies the geometrical constraints of many precision munitions. Remote designators need to be close enough to accurately designate but far enough away not to be acquired by the PGM during its flight path.

5-64. The urban environment also affects the use of nonprecision munitions. Building height may cause variable time fuses to arm prematurely. Tall buildings may also mask the effects of illumination rounds. Units may choose not to use dual-purpose conventional munitions if—

- The enemy has several building floors for overhead protection.
- Dismounted friendly units need rapid access to the area being fired on.
- Large numbers of civilians will operate in the target areas soon after combat operations have ceased.

5-65. Depending on the building construction, commanders may prohibit or limit illumination, smoke, and other munitions because of fire hazards. (Of course, in particular instances, they may specifically use them for that effect.) Structure fires in an urban area are difficult to control and may affect friendly units. Conventional high-explosive munitions may work best against concrete, steel, stone, and other reinforced structures. When not used in the direct-fire role, a greater mass of indirect fire is often required to achieve desired effects. Commanders balance firepower and collateral damage since the rubbling caused by massive indirect fires may adversely affect a unit's ability to maneuver and provide a threat with additional cover and concealment.

5-66. Nonlethal weapons can help commanders maintain the desired balance of force protection, mission accomplishment, and safety of noncombatants by expanding the number of options available when deadly force may be problematic. As additional nonlethal capabilities are developed, they are routinely considered for their applicability to UO. In determining their use and employment, commanders consider—

- **Risk.** The use of nonlethal weapons in situations where lethal force is more appropriate may drastically increases the risk to Army forces.
- **Threat Perspective.** A threat may interpret the use of nonlethal weapons as a reluctance to use force and embolden him to adopt courses of action that he would not otherwise use.
- **Legal Concerns.** Laws or international agreements may restrict or prohibit their use (see Chapter 9).
- **Environmental Concerns.** Environmental interests may also limit their use.
- **Public Opinion.** The apparent suffering caused by nonlethal weapons, especially when there are no combat casualties with which to contrast it, may arouse adverse public opinion.

Air Defense

5-67. The air defense system protects the force from air surveillance and air and missile attack. This system uses—

- The careful massing of air and missile defense combat power at points critical to the urban operation.
- The proper mix of air defense weapon and sensor systems.
- Matched (or greater) mobility to the supported force.
- The integration of the air defense plan into the overall urban operation.
- The integration of Army systems with those of joint and multinational forces.

Properly planned and executed air defense prevents air threats from interdicting friendly forces and frees the commander to synchronize maneuver and other elements of firepower. Even in an MTW, the enemy will likely have limited air and missile capabilities and so seek to achieve the greatest payoff for the use of these systems. Attacking Army forces and facilities promises the greatest likelihood of achieving results, making urban areas the most likely targets for air and missile attack.

5-68. **Rotary- and Fixed-Winged Aircraft.** Enemy rotary-wing aircraft can be used in various roles to include air assault, fire support, and CSS. Some threats may use unmanned aerial vehicles to obtain intelligence and target acquisition data on friendly forces. Increased air mobility limitations and targeting difficulties may cause enemy fixed-wing aircraft to target key logistics, C2 nodes, and troop concentrations outside the urban area, simultaneously attacking key infrastructure both in and out of the urban area.

5-69. **Increased Missile Threat.** The intermediate range missile capability of potential threats has increased to be the most likely air threat to an urban area. Urban areas, particularly friendly or allied, make the most attractive targets because of the sometimes-limited accuracy of these systems. By firing missiles at an urban area, a threat seeks three possible objectives:

- Inflict casualties and materiel damage on military forces.
- Inflict casualties and materiel damage on the urban population.
- Undermine the confidence or trust of the civil population (particularly if allied) in the ability of Army forces to protect them.

5-70. If facing a missile threat, commanders conducting UO work closely with civil authorities (as well as joint and multinational forces) to integrate the Army warning system with civil defense mechanisms. Similarly, Army forces may support urban agencies reacting to a missile attack with medical and medical evacuation support, survivor recovery and assistance in damaged areas, and crowd control augmentation of local police forces. Before such an attack, Army engineers might assist and advise the urban area's officials on how to construct shelters.

5-71. **Increased Security of Assets.** When defending against an air or missile threat in a neutral or hostile urban environment, air defense assets are concerned with security. Separating air defense locations from high population and traffic centers, as well as augmenting these positions with defending forces, can prevent or defeat threat efforts to neutralize them. Additionally, increased density of UO means increased concentration of all friendly and enemy systems engaged in air and counter-air operations. This density may increase friend and foe identification challenges, air space management challenges, and the overall risk in the conduct of air operations. Finally, limited air defense assets, difficulties in providing mutual support between systems, potential mobility limitations, and other effects of the urban environment increase the need for (and effectiveness of) a combined arms approach to air defense (see FM 44-8).

Mobility, Countermobility, and Survivability

5-72. Mobility operations preserve the freedom of maneuver of friendly forces. Countermobility operations deny mobility to threat forces so that they can be destroyed. Survivability operations protect friendly forces from the effects of enemy weapons systems and from natural occurrences. All three aspects of this system have distinct and important applications in UO.

5-73. **Mobility.** The urban environment presents constant challenges to urban mobility. Combined arms task organization and effectively using engineers to conduct mobility missions significantly reduces these challenges. Commanders consider all urban buildings obstacles to movement. Engineers,

trained and equipped for UO, can turn these obstacles into an advantage by breaching them with "mouse holes" made by explosives, sledgehammers, bulldozers or armored vehicles, or high-strength (diamond or carbide-tipped) cutting devices. These breaches permit dismounted movement through buildings under both cover and concealment.

5-74. Engineers are also trained and equipped to facilitate mounted mobility in the urban environment. Buildings are essentially unbreachable obstacles that restrict mounted movement to the compartmented and canalized streets. Threats can block streets with roadblocks ranging from sophisticated log and concrete cribs reinforced with antitank and antipersonnel mines to expedient cars, buses, and trucks. Engineers breach these obstacles to maintain the coherence of the combined arms team (mounted and dismounted). Engineers are forward, often task organized down to platoon level, and have the expertise and equipment to rapidly reduce point obstacles. It even may be necessary that every armored vehicle (or section of two vehicles) be task organized with an associated engineer squad and combat engineer vehicle.

5-75. In all UO, mobility operations may allow civilian traffic and commerce to resume, letting the urban area return to some semblance of normalcy (often a critical objective). In stability operations, mobility often focuses on keeping lines of communications open and reducing the threat of mines to soldiers and civilians. In support operations, mobility may focus on removing storm debris or reducing obstacles caused by destroyed property.

5-76. **Countermobility.** Countermobility capabilities in urban terrain are essential in all UO, not just defensive. In defensive operations, commanders use countermobility capability to control *where* the enemy moves in the urban area. Repositioning defensive forces in the urban area can be difficult and obstacles are essential to limiting the enemy's maneuver options. During offensive operations, countermobility protects exposed flanks and air assaulting forces from counterattack. In stability operations, countermobility operations may take the form of constructing barriers to assist in populace and resources control at critical urban locations.

5-77. **Survivability.** Survivability in the urban environment is a significant force multiplier. Properly positioned Army forces can take advantage of the increased survivability afforded by the physical terrain. Even a limited engineer effort can significantly enhance the combat power of small Army forces. In stability operations, properly planned and constructed survivability positions can enable small groups of soldiers to withstand the assaults of large mobs, sniping, and indirect fire. These survivability positions are often critically essential to minimizing casualties during long-term stability operations.

5-78. While executing MTW combat operations, in particular defensive operations, well planned and resourced engineer efforts can enhance the survivability characteristics of the urban area. These efforts, though still requiring significant time and materiel, can establish defensive strong points more quickly and with greater protection than can be done in more open terrain. Skillfully integrating the strong point into the urban defense greatly increases the overall effectiveness of the defense disproportionately to the number of forces actually occupying the strong point (see Chapter 7).

5-79. The Army's urban survivability operations can become complex if the Army is tasked to support survivability operations for civilians. Such operations can range from constructing civil defense shelters or evacuating the population to assisting the population in preparing for or reacting to the use of weapons of mass destruction. However, Army forces are not organized or equipped to support a major urban area's requirements as well as its own mission needs. Normally, Army forces can render this type of support only as a focused mission using a unique, specially equipped task organization.

Combat Service Support

5-80. Combat service support incorporates technical specialties and functional activities, to include maximizing available host-nation infrastructure and contracted logistics support. It provides the physical means with which forces operate. CSS operations relate to UO in two ways. The first is CSS operations conducted to support units conducting UO. The second way is conducting CSS operations from locations positioned in an urban area.

5-81. Commanders using CSS to support the full range of Army operations across the spectrum of conflict understand diverse CSS requirements of units conducting UO. They also understand how the environment (to include the population) can impact CSS support. These requirements range from minimal to extensive, requiring Army forces to provide or coordinate all life support essentials to a large urban population.

5-82. CSS commanders and staffs consider and plan for Army sustaining operations that are based in a major urban area. These operations are located in major urban areas to exploit air- and seaports, maintenance and storage facilities, transportation networks, host-nation contracting opportunities, and labor support. These operations are also UO. The CSS commander gains additional factors to consider from basing the CSS operation in an urban environment. See Chapter 9 for a detailed discussion of urban CSS.

Command and Control

5-83. **Command and control** is the exercise of authority and direction by a properly designated commander over forces made available in the accomplishment of the missions. He exercises authority and direction through a

> *Fighting in a city is much more involved than fighting in the field. Here the "big chiefs" have practically no influence on the officers and squad leaders commanding the units and subunits.*
>
> Soviet General Vasili Chuikov
> during the 1942-43 Battle for Stalingrad

command and control system (FM 6-0). The urban environment influences both components of command and control: the commander and the C2 system (which includes INFOSYS). The leader's ability to physically see the battlefield, his interaction with the human component of the environment, his ability to effectively execute the targeting process, and his intellectual flexibility in the face of change all impact the mission. The C2 system faces difficulties placed on the tactical Internet and system hardware by the urban environment, by the increased volume of information, and by requirements to support the dynamic decisionmaking necessary to execute successful UO.

5-84. **Unity of Command.** Although severely challenged, the principle of unity of command remains essential to UO. However, the number of tasks and the size of the urban area often require that Army forces operate noncontiguously. Noncontiguous operations stress the C2 system and challenge the commander's ability to unify the actions of his subordinates, apply the full force of his combat power, and achieve success. To apply this crucial principle in an urban environment requires centralized planning, mission orders, and highly decentralized execution. The method of C2 that best supports UO is mission command (see FM 6-0). Mission command permits subordinates to be innovative and operate independently according to clear orders and intent as well as clearly articulated ROE. These orders and ROE guide subordinates to make the right decision when facing—

- A determined, resolute, and knowledgeable threat.
- A complex, multidimensional battlefield.
- Intermittent or complete loss of communications.
- Numerous potentially hostile civilians close to military operations.
- The constant critique of the media.

Decentralized execution allows commanders to focus on the overall situation—a situation that requires constant assessment and coordination with other forces and agencies—instead of the numerous details of lower-level tactical situations. Fundamentally, this concept of C2 requires commanders who can accept risk and trust in the initiative, judgment, and tactical and technical competence of their subordinate leaders. Many times, it requires commanders to exercise a degree of patience as subordinate commanders and leaders apply mental agility to novel situations.

5-85. **Political and Media Impact.** Commanders of a major operation consider how the need to maintain a heightened awareness of the political situation may affect their exercise of C2. A magnified political awareness and media sensitivity may create a desire to micromanage and rely solely on detailed command. Reliance on this method may create tactical leaders afraid to act decisively and with speed and determination—waiting instead for expected guidance from a higher-level commander. Threats may capitalize on this hesitation by conducting operations faster than Army forces can react. Mission orders that express the overarching political objectives and the impact of inappropriate actions, combined with training and trust, will decrease the need for detailed command. Leaders reduce a complex political concept to its simplest form, particularly at the small-unit level. Even a basic understanding will help curtail potentially damaging political actions and allow subordinates to make the often instantaneous decisions required in UO—decisions that support military and political objectives.

5-86. **Commander's Visualization.** Leaders at all levels need to see the battlefield to lead soldiers, make effective decisions, and give direction. Sensors and other surveillance and reconnaissance assets alone cannot provide all the information regarding the urban environment that commanders will need. The focus of lead elements narrows rapidly once in contact with a hostile force limiting their assessment to the local area. Therefore, tactical commanders will not be able to observe operations from long, stand-off ranges. Their personal observation remains as critical in urban areas as elsewhere and helps to preclude commanders from demanding their subordinates accomplish a task or advance at a rate inconsistent with the immediate situation. In urban offensive and defensive operations, seeing the battlefield requires that commanders move themselves and their command posts forward to positions that may be more exposed to risk. Thus, commanders modify their C2 system capabilities to make them smaller, reduce their signature, and increase their mobility. Because of the greater threat to C2, security efforts may be more intense.

5-87. In stability operations, commanders often intervene personally to reassure the urban population and faction leaders about the intentions of Army forces. To achieve results, commanders personally negotiate and intervene with various faction and community leaders. In these type operations, threats may attack leaders to gain the greatest payoff with the least expenditure of resources. Commanders carefully evaluate risk and potential benefits of such exposure. These risks however, cannot stop them from seeing the battlefield, personally intervening in situations as appropriate, and leading their soldiers.

5-88. Commander's visualization also requires having detailed maps, other appropriate intelligence products, and INFOSYS that accurately depict the urban environment and help establish a COP. The reliability of these items is as important to planning major operations as it is to tactical-level operations. The commander of the major operation ensure that subordinate tactical-level commanders have the necessary products to achieve accurate situational understanding and dominate the urban environment as subordinate commands often lack the personnel or assets to develop these products. Frequently, satellite or aerial imagery is requested to compensate for the drastic changes that can occur due to UO, natural disasters, and outdated or imprecise maps. (Even maps developed and maintained by urban area's administrative activities may not be up-to-date. Extensive and continually expanding shantytowns, for example, may not be mapped at all. Maps may have even been purposefully distorted.)

> *I heard small-arms fire and RPG explosions and felt shrapnel hit the vehicle. . . . Land navigation at this time was impossible; every time I tried to look out, I was thrown in a different direction. . . . At this time, I was totally disoriented and had not realized we were on our own.*
>
> Captain Mark Hollis
> "Platoon Under Fire"

5-89. Other critical intelligence products needed to visualize, describe, and direct UO may include overlays or gridded reference graphics (see also

Appendix B). Overlays and graphics portray important societal information or urban infrastructure, such as—

- Religious, ethnic, racial, or other significant and identifiable social divisions.
- Locations of police, fire, and emergency medical services and their areas, boundaries, or zones of coverage.
- Protected structures such as churches, hospitals, or other historical and culturally significant buildings or locations.
- Underground subway, tunnel, sewer, or water systems.
- Bridges, elevated roadways, and rail lines.
- Electrical generation (to include nuclear) and gas storage and production facilities and their distribution lines.
- Water and sewage treatment facilities.
- Telephone exchanges and television and radio stations.
- Toxic industrial material locations.

5-90. **The Targeting Process.** Heightened concerns for collateral damage will require that commanders pay particular attention to their targeting process. This process ensures that all available combat power, both lethal and nonlethal (including IO), is effectively integrated and synchronized to accomplish the mission. Commanders ensure that techniques and procedures are in place, rehearsed, and understood by all members of their staffs. Additionally, the C2 system is responsive and agile; otherwise, an elusive and adaptable threat will likely disappear before units can employ the appropriate weapon systems.

5-91. Greater concerns exist for the safety and health (environmental matters) of the urban populace and the protection of critical infrastructure and cultural structures. Hence, CA and staff judge advocates (see Chapter 9) will play a greater role for the expert advice they can provide regarding these elements of the urban environment. Nonetheless, all members of the staff ensure that operations minimize collateral damage. That responsibility does not end with identifying potential collateral damage; the goal, as always, is successful mission accomplishment. Again, staffs are guided by the commander's intent and work to develop courses of action that incorporate collateral damage concerns (short- and long-term) yet accomplish the mission. This requires a keen understanding of the legal issues and both friendly and enemy weapon systems' effects in an urban environment.

5-92. **Mental Flexibility.** Commanders conducting UO remain mentally flexible. Situations can change rapidly because of the complexity of the human dimension. Typical of the change is a stability operation that suddenly requires the use of force. Commanders then quickly adjust their mental focus from a noncombat to combat situation. Equally important is the requirement to deal with populations when executing combat operations. They easily adjust plans and orders for sudden stability and support tasks that emerge during or soon after a combat mission. The commander's vision includes the second- and third-order effects of UO.

5-93. **Information Systems.** The urban environment will also challenge INFOSYS that support the commander. Perhaps the largest physical

challenge will be communications. Urban structures, materials, densities, and configurations (such as urban canyons) and power constraints associated with man-portable radios significantly degrade frequency modulation (FM) communications. This causes problems at brigade-level and below where commanders rely heavily on constant FM radio contact with subordinates. Tactical communication problems might also cause an inability to maintain a COP, to give orders and guidance, to request support, or to coordinate and synchronize elements of the combined arms team. Communication problems in urban areas can prevent the achievement of information superiority and contribute directly to mission failure. In UO, allocating critical or high-value communication assets will be significant and essential to weighting the main effort.

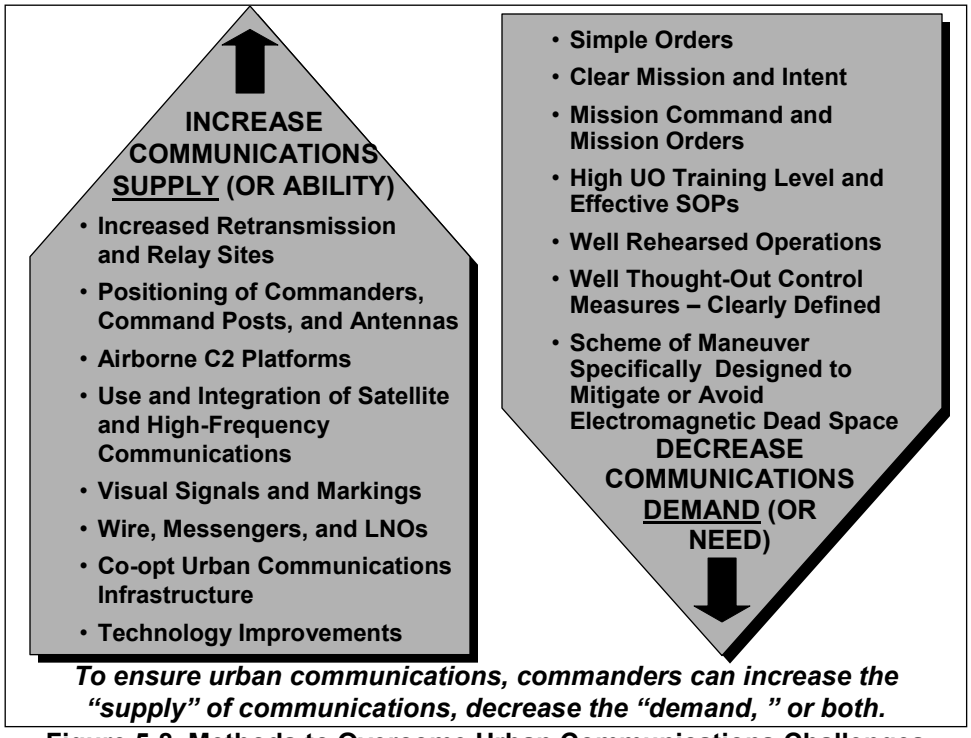

Figure 5-8. Methods to Overcome Urban Communications Challenges

5-94. In an urban environment, units and staffs properly prepare for and mitigate the communication problems in urban areas (see Figure 5-8). Adequate communications, in most cases, are ensured by—

- Training in and use of retransmission and relay sites and equipment.
- Airborne command posts, satellite communications, high-frequency radios, and other redundant communication platforms.
- Careful positioning of commanders, command posts, and antennas to take advantage of urban terrain characteristics.
- Correct procedures will permit adequate communications in most situations.

Standing operating procedures (SOPs) for visual markings (both day and night) may assist in command and control. SOPs indicate unit locations and

other essential information. They coordinate with units across common boundaries. Given adequate consideration to limitations on multinational capabilities, SOPS may assist in command and control and preclude fratricide incidents resulting from loss of FM communications. However, visual signals, particularly pyrotechnics, are less effective in buildings and enclosed spaces.

5-95. In defensive, stability, or support operations, positions do not change as frequently as in offensive operations. Urban commanders then rely more on military wire (properly camouflaged amongst the civilian communications infrastructure), commercial communications, and messengers. Even in combat, some if not all of the urban area's organic communications structure remains intact for Army use. For example, every building may have one or more telephone distribution boxes that can control up to 200 individual telephone lines. Setting up wire communications using these points is relatively simple but, like all wire communications, is susceptible to wiretapping. Cellular telephones can usually work well in urban areas; however, locating and destroying the repeater stations or the central cellular telephone system easily disables them. Consequently, the C2 system may use these alternatives to FM communications but with proper operations and physical security procedures in place.

Example of Simple Communications Innovation
Israel's Six-Day War – 1967

In the 1967 battle for Jerusalem, the Israeli Defense Force placed flags on top of cleared buildings so that aircraft providing close air support could monitor the Israeli forward line of troops. They also used a spotlight during the night to mark specific buildings as close air support targets.

5-96. Command posts above brigade-level ensure that they can communicate in an urban area without significant disruption. In stability operations and support operations, immediate and reliable communications between tactical and strategic levels may be necessary. Higher commanders anticipate that although the urban area does not significantly challenge their INFOSYS, the area may severely challenge systems at the lower tactical levels. For this reason, information flow from lower to higher may take longer. If the situation is not acceptable, the higher headquarters takes steps to mitigate it, such as increasing the number of liaison officers operating with units engaged in decisive operations. In some instances, the scheme of maneuver may be specifically designed to account for communications interference, propagation characteristics, and electromagnetic dead space. (However, this will require more time, resources, and a detailed communications IPB of the urban area.)

5-97. Finally, urban areas can overload the INFOSYS with information. UO across the spectrum of conflict and throughout the range of operations can generate large volumes of information when crises threaten. This sheer volume can easily overwhelm UO commanders and command posts. Training prepares command posts to handle this volume of information and to filter

the critical from the merely informative. Staffs work hard to create products (visual or textual) that help their commanders understand the urban environment, not just present them information to know.

TACTICAL CONSIDERATIONS

5-98. Commanders and planners of major UO thoroughly understand the tactical urban battle. They especially understand the effects of the environment on men, equipment, and systems. The complexity of urban environment changes and often compresses many factors typically considered in the planning process. Figure 5-9 shows some of these compressed factors.

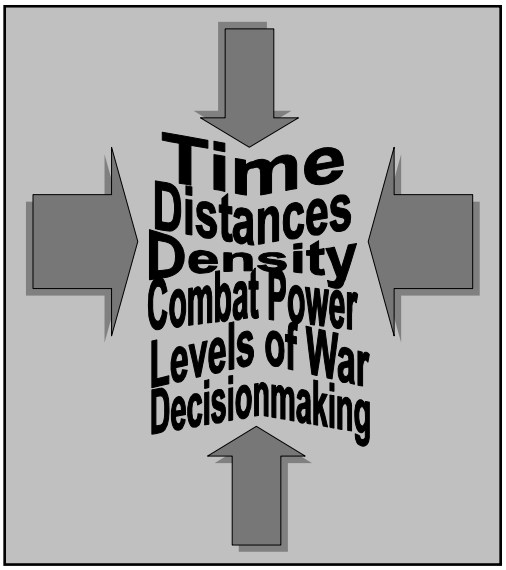

Figure 5-9. Compressed Tactical Factors

Time

5-99. The time available to think and act is compressed in urban combat operations. The tactical engagements that comprise battles and major UO are often quick and decisive; therefore, higher-level decisionmaking is correspondingly fast. The impact of decisions (or lack of) and the outcome of battle can occur in mere minutes. Often the amount of information and the number of decisions can overwhelm the overall ability of INFOSYS to respond. Commanders have little time to influence tactical actions with resources kept in reserve. Reserves and fire support assets are close to the point of decision so that they can respond in time to make a difference. The terrain causes C2 challenges that further inhibit commanders from responding quickly to changes in the situation. Small unit leaders receive training that emphasizes understanding the commander's intent so that they can recognize tactical opportunities and can act quickly to take advantage of them.

Distances and Density

5-100. Distances in UO are compressed to correspond to the density of threat forces and noncombatants. In open terrain, squads, platoons, and companies may be able to control or influence thousands of meters of space. In UO, large buildings can absorb the efforts of several companies or battalions. Crowds of thousands can assemble in areas of a few hundred meters requiring correspondingly large forces for control. Maximum engagement ranges, as influenced by the urban terrain, are usually closer. Units may require field artillery for direct fire at targets ranging fewer than a hundred meters. Commanders and staffs understand the telescoping nature of the battlefield, the density of threat forces, and the density of noncombatants. In addition to the actual conduct of urban tactical operations, these factors will directly affect planning, force deployment, and strength.

5-101. Time-distance considerations are especially important throughout planning cycles. Though distances may be short, the physical nature of the environment can drastically change the planning factors for unit movements. The advance of a battalion may be measured in hundreds of meters per day. Thus, all time and distance calculations that relate to sequencing of forces, synchronizing combat power and other capacities, and making decisions require reevaluation based on the urban conditions.

Combat Power

5-102. The urban terrain can also compress combat power. This terrain increases the utility and effects of some weapons and systems, increasing overall combat power. One system that dramatically demonstrates this effect is the sniper. In open terrain, snipers slightly influence operations. In UO, snipers—well concealed, positioned, and protected—can take on significance disproportionate to their combat capability in other situations.

5-103. The density of ground combat power in a given size area is also increased because of the effect of the terrain on ranges. The complex terrain precludes standoff engagement from extended ranges by dispersed forces. Commanders often position weapon systems closer together and at shorter ranges to mass effects on the same target. Thus, commanders may position armored vehicles, which typically position themselves hundreds of meters from friendly troops and other vehicles, within a few meters of each other to provide mutual support. Targets, which in open terrain are engaged at thousands of meters, are engaged in tens of meters on the urban battlefield.

5-104. The dense clutter of the urban environment also affects target acquisition. Systems, such as radar optimized for open terrain, will not be able to acquire targets as effectively. Decreased acquisition capability equates to diminished combat power. It may also require increasing the density of acquisition systems to compensate for reduced capability.

5-105. Finally, the density of combat power may also increase the vulnerability of Army forces. Many Army systems are protected from enemy systems at longer ranges. The number of enemy systems that can threaten Army forces at a short range increases dramatically. Lack of dispersal will make it more likely that multiple Army systems can be targeted by a single enemy threat.

Levels of War

5-106. The levels of war are also compressed in the urban area. The tactical actions of individuals and small units can directly influence operational and even national and strategic objectives. Conversely, the decisions of the President can directly affect the conduct of tactical operations. UO have short cause and effect links between the tactical, operational, and strategic levels of operations. Because of the close media scrutiny of UO, the President can sometimes observe the actions of platoons in real time. For example, the media may film a platoon applying nonlethal force for crowd control. The President can view that film on the nightly news before the platoon even disengages from the action, much less reports formally through the various levels of command. If appropriate, the President can decide and direct the

strategic and operational commanders to adjust ROE before the platoon has reported. Therefore, commanders at all levels know the urban environment's potential compressive effects on the levels of war. A major impact of these effects can be a lower tolerance for tactical errors and a greater need for detailed planning and precision in execution and weapons' effects (lethal and nonlethal).

Decisionmaking

5-107. The nature of the urban environment compresses the time available to make decisions and increases the number of decisions to make. This is particularly true at the lower tactical levels. Units observing an urban AO face more potential unknowns than in other situations. A large structure presents many more potential firing positions that are observed than simpler terrain. Movement in one of those windows forces the soldier or unit to quickly make a decision regarding the nature of the target—deciding whether it is a threat or a noncombatant.